IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:	)	**Mail Stop Appeal Brief – Patents**
	)	
Sergey BRIN et al.	)	Group Art Unit: 2166
	)	
Application No.: 10/629,479	)	Examiner: L. Harper
	)	
Filed: July 28, 2003	)	Confirmation No. 7460
	)	
For: SYSTEM AND METHOD FOR	)	
PROVIDING A USER INTERFACE	)	
WITH SEARCH QUERY	)	
BROADENING	)	

<u>APPEAL BRIEF</u>

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief - Patents
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

This Appeal Brief is submitted in response to the final Office Action, dated June 24,

2009, in support of the Notice of Appeal, filed September 24, 2009, and in response to the Notice

of Panel Decision from Pre-Appeal Brief Review, dated January 12, 2010.

I.   <u>REAL PARTY IN INTEREST</u>

The real party in interest in this appeal is Google Inc.

II.   RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

Appellants are unaware of any related appeals, interferences or judicial proceedings.

III.   STATUS OF CLAIMS

Claims 37-45, 49, 51-57, 63-74, and 77-89 are pending in this application. Claims 1-36, 46-48, 50, 58-62, and 75-76 were canceled without prejudice or disclaimer.

Claims 37-45, 49, 51-57, 63-74, and 77-89 were finally rejected in the final Office Action, dated June 24, 2009, and are the subject of the present appeal. These claims are reproduced in the Claim Appendix of this Appeal Brief.

IV.   STATUS OF AMENDMENTS

Appellants filed an After Final Amendment on August 24, 2009 subsequent to the final Office Action, dated June 24, 2009. The Examiner issued an Advisory Action, dated September 10, 2009, indicating that the After Final Amendment will be entered for purposes of Appeal, but that the After Final Amendment did not place the application in condition for allowance. Appellants filed a Notice of Appeal and a Pre-Appeal Brief Request for Review on September 24, 2009. A subsequent Notice of Panel Decision from Pre-Appeal Brief Review, dated January 12, 2010, indicated that at least one actual issue for appeal exists.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In the paragraphs that follow, a concise explanation of the independent claims, each dependent claim argued separately, and the claims reciting means-plus-function or step-plus-function language that are involved in this Appeal will be provided by referring, in parenthesis, to examples of where support can be found in the specification and drawings.

Claim 37 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query comprising a plurality of search terms from a user (e.g., p. 10, lines 20-26; Fig. 5, item 61), where the search query further includes a plurality of user-selected operators associated with one of the search terms of the search query and where the plurality of operators comprise a same operator repeated multiple times (e.g., p. 11, lines 10-15); broadening, using one or more processors associated with the computer system, the one of the search terms based on the plurality of user-selected operators to produce a broadened search query (e.g., p. 12, lines 17-23; Fig. 5, item 62; Fig. 6, item 72), where broadening the one of the search terms comprises broadening the one of the search terms to an extent determined by a number of times the same operator is repeated (e.g., p. 11, lines 10-15); and executing, using one or more processors associated with the computer system, a search using the broadened search query (e.g., p. 11, line 30 to p. 12, line 4; Fig. 5, item 65).

Claim 38 recites that the search query further includes a user-selected delimiter associated with another one of the search terms that indicates that the other one of the search terms should not be broadened (e.g., p. 12, lines 23-25).

Claim 39 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query

comprising a plurality of search terms (e.g., p. 10, lines 20-26; Fig. 5, item 61); broadening, using one or more processors associated with the computer system, one of the plurality of search terms (e.g., p. 11, lines 26-28); excluding, using one or more processors associated with the computer system, the broadened one of the plurality of search terms from the search query (e.g., p. 8, lines 21-23); executing, using one or more processors associated with the computer system, a search based on the search query, after excluding the broadened one of the plurality of search terms, to provide search results (e.g., p. 8, lines 23-26); and evaluating, using one or more processors associated with the computer system, the search results relative to the excluded search term using categorical or clustered distinctions (e.g., p. 8, lines 26-30).

Claim 44 recites that broadening the one of the search terms comprises presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms; and receiving, from the user, a selection from the presented at least one broadened search term (e.g., p. 14, lines 1-12; Fig. 7, items 84-90).

Claim 45 recites that broadening the one of the search terms comprises presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink and forming the broadened search query responsive to a selection of the hyperlink by the user (e.g., p. 13, lines 27-29; Fig. 7, items 82-83).

Claim 49 is directed to one or more memory devices containing instructions executable by one or more processors (e.g., p. 6, lines 16-24). The one or more memory devices comprise one or more instructions to receive a search query comprising a plurality of search terms from a user, where the search query includes multiple symbols which define a user-assigned strength of broadening associated with one of the search terms of the search query (e.g., p. 11, lines 10-15);

one or more instructions to broaden the one of the search terms to an extent determined by the user-assigned strength to produce a broadened search query, where a number of the multiple symbols determines the extent to which the one of the search terms is broadened (e.g., p. 12, lines 17-23; p. 11, lines 10-15; Fig. 5, item 62; Fig. 6, item 72); and one or more instructions to execute a search based on the broadened search query (e.g., p. 11, line 30 to p. 12, line 4; Fig. 5, item 65).

Claim 51 recites that the search query further includes a user-selected delimiter associated with another one of the search terms that indicates that the other one of the search terms should not be broadened (e.g., p. 12, lines 23-25).

Claim 56 recites that the one or more instructions to broaden the one of the search terms comprises one or more instructions to present at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and one or more instructions to receive, from the user, a selection from the presented at least broadened search term (e.g., p. 14, lines 1-12; Fig. 7, items 84-90).

Claim 57 recites that the one or more instructions to broaden the one of the search terms comprises one or more instructions to present at least one broadened search characteristic associated with the one of the search terms as a hyperlink and one or more instructions to form the broadened search query responsive to a selection of the hyperlink by the user (e.g., p. 13, lines 27-29; Fig. 7, items 82-83).

Claim 65 is directed to a system. The system includes one or more server devices comprising means for receiving a search query comprising a plurality of search terms from a user (e.g., p. 5, lines 15-26; Fig. 1, item 11; p. 10, lines 20-26; Fig. 5, item 61), where the search

query further includes multiple user-selected operators associated with one of the search terms of the search query and where the multiple user-selected operators comprise multiple symbols that represent search term broadening (e.g., p. 11, lines 10-15); means for broadening the one of the search terms based on the multiple user-selected operators to produce a broadened search query (e.g., p. 5, lines 15-26; Fig. 1, item 11; p. 12, lines 17-23; Fig. 5, item 62; Fig. 6, item 72), where the means for broadening the one of the search terms based on the multiple user-selected operators to produce a broadened search query comprises means for broadening the one of the search terms to an extent determined by a number of occurrences of the multiple symbols (e.g., p. 11, lines 10-15); and means for executing a search using the broadened search query (e.g., p. 5, lines 15-26; Fig. 1, item 11; p. 11, line 30 to p. 12, line 4; Fig. 5, item 65).

Claim 67 recites that the search query further includes a user-selected delimiter associated with another of the search terms that indicates that the other of the search terms should not be broadened (e.g., p. 12, lines 23-25).

Claim 73 recites that the means for broadening the one of the search terms includes means for presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and means for receiving a selection from the presented at least broadened search term from the user (e.g., p. 14, lines 1-12; Fig. 7, items 84-90).

Claim 74 recites that the means for broadening the one of the search terms includes means for presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink and means for forming the broadened search query responsive to a selection of the hyperlink by the user (e.g., p. 13, lines 27-29; Fig. 7, items 82-83).

Claim 80 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query comprising a search term (e.g., p. 10, lines 20-26; Fig. 5, item 61); obtaining, using one or more processors associated with the computer system, a set of broadened search terms based on the search term (e.g., p. 12, line 28 to p. 13, line 2; Fig. 6, items 75 and 76); presenting, using a network interface associated with the computer system, the set of broadened search terms as a set of corresponding hyperlinks in a user interface (e.g., p. 13, lines 27-29; Fig. 7, items 82-83); receiving, using a network interface associated with the computer system, selection of a subset of hyperlinks of the set of hyperlinks to select a subset of the broadened search terms (e.g., p. 13, lines 27-29; Fig. 7, items 82-83); broadening, using one or more processors associated with the computer system, the search query using the selected subset of broadened search terms (e.g., p. 13, lines 27-29; Fig. 7, items 82-83; p. 11, lines 26-28); and executing, using one or more processors associated with the computer system, a search using the broadened search query (e.g., p. 11, line 30 to p. 12, line 4; Fig. 5, item 65).

Claim 85 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query comprising a search term (e.g., p. 10, lines 20-26; Fig. 5, item 61),; obtaining, using one or more processors associated with the computer system, a set of broadened search terms based on the search term (e.g., p. 12, line 28 to p. 13, line 2; Fig. 6, items 75 and 76); presenting, using a network interface associated with the computer system, a set of checkboxes in conjunction with the set of broadened search terms, where each checkbox of the set of checkboxes corresponds to one broadened search term of the set of broadened search terms (e.g., p. 14, lines 5-12; Fig. 7, items 88-91); receiving, using a network interface associated with the computer system, a

selection of a subset of the set of checkboxes to select a subset of the broadened search terms

(e.g., p. 14, lines 5-12); broadening, using one or more processors associated with the computer

system, the search query using the selected subset of broadened search terms (e.g., p. 14, lines 5-

12; p. 11, lines 26-28); and executing, using one or more processors associated with the

computer system, a search using the broadened search query (e.g., p. 11, line 30 to p. 12, line 4;

Fig. 5, item 65).

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A.   Pending claims 37-45, 49, 51-57, 63-74, and 77-89 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the U.S. Patent Application Publication No. 2003/0212666 to Basu (hereinafter "BASU") in view of U.S. Patent No. 6,243,713 to Nelson (hereinafter "NELSON").

VII.   ARGUMENTS

A.   The rejection under 35 U.S.C. § 103(a) based on BASU and NELSON should be reversed.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 U.S.P.Q. 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). KSR International Co. v. Teleflex Inc., 550 U.S. 398 (2007). The Examiner is also required to explain how and why one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

1.   Claims 37 and 40-43.

Independent claim 37 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a

search query comprising a plurality of search terms from a user, where the search query further

includes a plurality of user-selected operators associated with one of the search terms of the

search query and where the plurality of operators comprise a same operator repeated multiple

times; broadening, using one or more processors associated with the computer system, the one of

the search terms based on the plurality of user-selected operators to produce a broadened search

query, where broadening the one of the search terms comprises broadening the one of the search

terms to an extent determined by a number of times the same operator is repeated; and executing,

using one or more processors associated with the computer system, a search using the broadened

search query. BASU and NELSON, whether taken alone or in any reasonable combination, do

not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest broadening, using one or

more processors associated with a computer system, one of the search terms based on a plurality

of user-selected operators to produce a broadened search query, where broadening the one of the

search terms comprises broadening the one of the search terms to an extent determined by a

number of times a same operator is repeated, as recited in claim 37. The Examiner admits that

BASU does not disclose this feature and relies on col. 7, lines 15-25 of NELSON for allegedly

disclosing this feature (final Office Action, p. 3). Appellants disagree with the Examiner's

interpretation of NELSON.

Col. 7, lines 15-25 of NELSON disclose:

As an optional process to increase the robustness of the multimedia retrieval pipeline, type-specific query
tokens may be added 180 to any or all of the components that are in the query. Query expansion 180 selects
"alternate" tokens to add to the query based on the original query tokens. For example, additional tokens
may be used to represent other words similarly spelled to query keywords or that have similar meanings, or
other images (or image attributes) of similar shape or color, texture, and so forth. This expansion can either
be done by default, or at the discretion of the user via query operators. In addition, query expansion can add
tokens of one component type in response to the presence of tokens of another type.

This section of NELSON discloses that an optional process to increase the robustness of a multimedia retrieval pipeline is to add type-specific query tokens to any or all components that are in a query. For example, additional tokens may be used to represent other words similarly spelled to query keywords, or that have similar meanings, or other images of similar shape, color, or texture. This query expansion can be done by default or at the discretion of the user via query operators. In addition, query expansion can add tokens of one component type in response to the presence of tokens of another type.

Assuming that the Examiner is relying on the tokens as allegedly corresponding to an operator, as recited in claim 37 (a point that Appellants do not concede), this section of NELSON does not disclose or suggest that one of the tokens is repeated, let alone that a broadening of one of the search terms is done to an extent determined by a number of times a token is repeated, as would be required by claim 37 based on the Examiner's interpretation of NELSON. Therefore, this section of NELSON does not disclose or suggest broadening, using one or more processors associated with a computer system, one of the search terms based on a plurality of user-selected operators to produce a broadened search query, where broadening the one of the search terms comprises broadening the one of the search terms to an extent determined by a number of times a same operator is repeated, as recited in claim 37.

Therefore, even if BASU were to be combined with NELSON, the combination would not disclose or suggest each of the features of claim 37. Further, even if for the sake of argument, the combination of BASU and NELSON could be fairly construed to disclose or suggest each of the features of claim 37, Appellants assert that the reasons for combining BASU and NELSON do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for combining BASU and NELSON, the

Examiner alleges (final Office Action, pp. 3-4):

> It would have been obvious to an artisan of ordinary skill in the pertinent at the time *(sic)* the invention was
> made to have incorporated the teaching of Nelson into the system of Basu. The modification would have
> been obvious because the two references are concerned with the solution to problem query broadening and
> data retrieval, therefore there is an implicit motivation to combine the references. In other words, the
> ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited
> references at the time the invention was made. Consequently, the ordinary skilled artisan, would have been
> motivated to combine the cited references since Nelsons teaching would enable users of the Basu system to
> have different from other operator along with the ability to index results and database data.

Appellants submit that the Examiner's allegation is clearly insufficient for establishing a *prima*

facie case of obviousness with respect to claim 37. The Examiner's statement is merely a

conclusory statement of an alleged benefit of the combination of BASU and NELSON. Such

conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie*

case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex

Inc., 550 U.S. 398 (2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was

held that rejections on obviousness grounds cannot be sustained by mere conclusory statements;

instead, there must be some articulated reasoning with some rational underpinning to support the

legal conclusion of obviousness. In this case, no such articulated reasoning has been provided

with respect to claim 37.

For example, the Supreme Court in KSR noted that the analysis supporting a rejection

under 35 U.S.C. § 103 <u>should be made explicit</u>. See M.P.E.P. § 2143. Exemplary rationales that

may support a conclusion of obviousness include: (A) Combining prior art elements according to

known methods to yield predictable results; (B) Simple substitution of one known element for

another to obtain predictable results; (C) Use of known technique to improve similar devices

(methods, or products) in the same way; (D) Applying a known technique to a known device

(method, or product) ready for improvement to yield predictable results; (E) "Obvious to try" -

choosing from a finite number of identified, predictable solutions, with a reasonable expectation

of success; (F) Known work in one field of endeavor may prompt variations of it for use in either

the same field or a different one based on design incentives or other market forces if the

variations are predictable to one of ordinary skill in the art; and (G) Some teaching, suggestion,

or motivation in the prior art that would have led one of ordinary skill to modify the prior art

reference or to combine prior art reference teachings to arrive at the claimed invention.

The Examiner did not indicate which of the above-noted rationales (or another rationale)

the Examiner is employing to support the alleged conclusion of obviousness with respect to

claim 37. The Examiner also did not articulate the specific findings required for the Examiner's

particular rationale, as enumerated in M.P.E.P. § 2143 under each of the above-noted exemplary

rationales.

In the Response to Arguments section of the final Office Action, the Examiner merely

states that one cannot show non-obviousness by attacking references individually where the

rejections are based on combinations of references, without any explanation as to what

element(s) of BASU or NELSON allegedly correspond to "the same operator" or explaining

which section of BASU or NELSON specifically correspond to "broadening the one of the

search terms to <u>an extent determined by a number of times the same operator is repeated</u>" (final

Office Action, pp. 16-17). Appellants arguments directed at the combination of BASU and

NELSON are provided above. As stated above, the Examiner has not provided any rationale as

to how the alleged combination of BASU and NELSON would disclose or suggest the above-

noted feature of claim 37.

In the Advisory Action, dated September 10, 2009, the Examiner alleges that, in

NELSON, the extent of the broadening is determined by a number of times the operator is

repeated, because if the operator is not included (i.e. appears 0 times), there is no broadening, and if the operator is included (i.e. appears 1 time), there is broadening (Advisory Action, first paragraph). This interpretation cannot reasonably be applied to claim 37, because claim 37 clearly recites "a same operator repeated multiple times" (claim 37, line 6). "Multiple times" means more than one time. NELSON does not disclose or suggest that the broadening operator appears more than once. Thus, the Examiner's allegation is factually incorrect.

With respect to the reasons for combining BASU and NELSON, Appellants explained that the Examiner's allegation, that NELSON's teaching would enable users of the BASU system to "have operators different from other operator along with the ability to index results and database data," is insufficient for establishing a prima facie case of obviousness with respect to claim 37, as the Examiner did not provide any articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (see, e.g., the arguments at pp. 20-22 of the Amendment).

In the Advisory Action, the Examiner also alleges that the Courts do not require an explicit motivation (Advisory Action, fifth paragraph). Appellants explained that Appellants have not asked for an explicit motivation to combine. Rather, Appellants asked for an explicit analysis, as required by KSR, meaning that the Examiner must provide a rationale, along with specific findings required by the rationale, as to how and why BASU and NELSON would be combined to arrive at the features of claim 37 (see M.P.E.P. § 2143). An alleged benefit resulting from combining BASU and NELSON, as provided by the Examiner, does not satisfy this requirement for an explicit analysis.

For at least the foregoing reasons, Appellants submit that claim 37 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly,

Appellants respectfully request that the rejection of claim 37 under 35 U.S.C. § 103(a) based on

BASU and NELSON be reversed.

Claims 40-43 depend from claim 37. Therefore, these claims are patentable over BASU

and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 37. Accordingly, Appellants respectfully request that the

rejection of claims 40-43 under 35 U.S.C. § 103(a) be reversed.

2.   Claim 38.

Claim 38 depends from claim 37. Therefore, this claim is patentable over BASU and

NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 37. Accordingly, Appellants respectfully request that the

rejection of claim 38 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 38 is patentable

over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of

its own.

For example, claim 38 recites that the search query further includes a user-selected

delimiter associated with another one of the search terms that indicates that the other one of the

search terms should not be broadened. BASU and NELSON, whether taken alone or in any

reasonable combination, do not disclose or suggest this feature.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing this feature

(final Office Action, p. 4). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU discloses:

> As mentioned above, the query system 108 of the present invention is adaptive. Specifically, the system
> 108 includes an adaptation module 212 that attempts to refine the search results as queries are repeated over
> time. The adaptation module 212 is capable of modifying the query expansion module 204, the sub-query
> processing module 206, and the merging module 208 according to user and system feedback. For example,
> if a user indicates that the sub-query term "smoke" is not relevant in a "rocket launch" query, the adaptation
> module 212 may adaptively assign a lower probability of relevance to the "smoke" sub-query in future

iterations of "rocket launch" queries. In other words, the adaptation module 212 modifies the query expansion module 204 so that the term "smoke" is assigned a lower confidence level in a "rocket launch" query. The parametric learning techniques of the adaptation module 212 may use a generative approach, including, but not limited to, probabilistic models and graphical probabilistic models and/or a discriminant approach, including, but not limited to, kernel machines, such as support vector machines and neural networks. The adaptation process of the system 108 is discussed in greater detail below.

This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest <u>a user-selected delimiter</u>. A delimiter, as the term is known in the art, indicates a character that signals that a subsequent character or set of characters is to be interpreted within the ordinary meaning of the character or set of characters, rather than as an operator. Furthermore, this section of BASU does not disclose or suggest <u>indicating that a search term should not be broadened</u>. Rather, this section of BASU discloses that if a user indicates that a sub-query term is not relevant to a query, the adaptation module may assign a lower probability of relevance to the sub-query term. The sub-query term "smoke" is a term that was generated in response to broadening the query term "rocket launch." Therefore, as <u>the query term has already been broadened</u>, this section of BASU cannot be reasonably interpreted as disclosing <u>a delimiter that indicates that a search term should not be broadened</u>.

Therefore, this section of BASU does not disclose or suggest that the search query further includes <u>a user-selected delimiter</u> associated with another one of the search terms <u>that indicates that the other one of the search terms should not be broadened,</u> as recited in claim 38.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 38.

For at least these additional reasons, claim 38 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

3.   <u>Claim 44.</u>

Claim 44 depends from claim 37. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 37. Accordingly, Appellants respectfully request that the rejection of claim 44 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 44 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of its own.

For example, claim 44 recites that broadening the one of the search terms comprises presenting at least one broadened search term associated with the one of the search terms as at least one of <u>a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and <u>receiving, from the user, a selection from the presented at least one broadened search term.</u> BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing these features (final Office Action, pp. 5-6). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest presenting at least one broadened search term as one of a of <u>a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u>, and <u>receiving, from the user, a selection from the presented at least one broadened search term</u>. The Examiner appears to be interpreting the above section of BASU as disclosing presenting broadened search terms to a user and receiving a selection from the user of a broadened search term. However, this interpretation of BASU is factually incorrect. At no point in the disclosure of BASU is it disclosed that a user may select which search terms are broadened in the user's query. Rather, this section of BASU discloses receiving feedback from the user regarding search results, and applying the user's feedback as weights to terms to be used in future search queries (by the adaptation module 212 of BASU, which attempts to refine search results as queries are repeated over time). Thus, the user's feedback is not applied to the user's query or to a particular query.

Therefore, this section of BASU does not disclose or suggest that broadening the one of the search terms comprises presenting at least one broadened search term associated with the one of the search terms as at least one of <u>a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and <u>receiving, from the user, a selection from the presented at least one broadened search term</u>, as recited in claim 44.

Appellants will address <u>all the sections of BASU that disclose user input</u> to further demonstrate this point.

Paragraph [0043] of BASU discloses:

> The query expansion operation 304 may be defined by the user or developed by the system through user interaction. <u>It is contemplated that query to sub-query expansion may be one-to-one, one-to-many, many-to-one, or many-to-many.</u> Referring now to FIG. 4, an example of a many-to-many query expansion process is shown. The query "outdoor" 402 is shown expanded to sub-queries "trees" 404 and "sky" 406, and the query "beach" 408 is mapped to sub-queries "sky" 406 and "sand" 410. Thus, queries may be expanded to a common sub-query while also being expanded to distinct sub-queries.
> (emphasis added)

This section of BASU discloses that a user may define whether a query expansion operation is one-to-one, one-to-many, many-to-one, or many-to-many. This section of BASU does not disclose or suggest presenting the user with a set of broadened search terms and receiving a selection of a broadened search term from the user. Therefore, this section of BASU does not disclose or suggest that broadening the one of the search terms comprises presenting at least one broadened search term associated with the one of the search terms as at least one of <u>a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and <u>receiving, from the user, a selection from the presented at least one broadened search term</u>, as recited in claim 44.

The last sentence of paragraph [0035] of BASU discloses:

> It should be noted that sub-query translation can be configured by the user and/or system, and may not necessarily be performed in every query.

This section of BASU discloses that a user may configure the type of sub-query translation that

is performed by the system, and that sub-query translation may not be performed in every query.

This section of BASU does not disclose or suggest presenting the user with a set of broadened

search terms and receiving a selection of a broadened search term from the user. Rather, this

section of BASU discloses configuring a type of sub-query translation (i.e., context-to-abstract,

abstract-to-context, etc.). Therefore, this section of BASU does not disclose or suggest that

broadening the one of the search terms comprises presenting at least one broadened search term

associated with the one of the search terms as at least one of <u>a static list, a menu of selectable

search terms, a set of checkboxes or a list of selectable search terms</u> and <u>receiving, from the user,

a selection from the presented at least one broadened search term</u>, as recited in claim 44.

Paragraphs [0052]-[0055] of BASU disclose:

Returning to FIG. 3, once the merging operation 308 complies a unified search result, control passes to
conditional operation 310. At this stage, the search result is presented to the user and the user indicates if
the result is acceptable. If the search result is accepted, the process ends. If, however, the search result does
not yield the required information, process control passes to adapting operation 312.
At adapting operation 312, the search process is modified in an attempt increase the relevance of the search
result when the search is repeated. Although the adapting operation 312 is shown executed after the
merging operation 308, it is contemplated that the adapting operation 312 may be performed during any
stage of the search process. Furthermore, the adapting operation 312 may be performed several times
during the search. Thus, the adaptation operation 312 may be performed during query expansion, sub-query
processing and result merging.

The present invention implements sequential adaptation, parallel adaptation, or a combination thereof. In
FIG. 9A, a sequential adaptation system 902 based on three iterations of feedback is shown. An example of
such a system is relevance feedback, where the user provides a new query example during each iteration of
the search. In FIG. 9B, a parallel adaptation system 904 based on a batch of multiple simultaneous
feedback is shown. For example, the user may provide a large number of positive and negative examples as
feedback to retrain the model of a submitted query.

The adaptation module of the probabilistic query expansion component of the search involves modification
of the probabilistic mapping used in query expansion. For example, if a user provides a query "beautiful
evening" and the user's feedback suggests that the user does not agree with the system returning beach
images, the adaptation can personalize the expansion to exclude the "beach" sub-query from the user's
query. The probabilistic mapping can be a conditional probability table and adaptation can imply change of
the probability mass functions. Such a change can be affected using frequency counting, relevance
feedback, expectation maximization algorithms, and other methods known to those skilled in the art.

This section of BASU discloses presenting search results to the user and that the user indicates if the result is acceptable. If the search result does not yield the required information the process control passes to an adapting operation. The adapting operation modifies the search process in an attempt to increase the relevance of the search results, based on user feedback. The adaptation may be serial, by having the user provide feedback over a series of search iterations, or parallel, by the user providing a large number of positive and negative examples to retrain the model. For example, in response to the query "beautiful evening," the user may indicate that the user does not like the system returning beach images, and in response, the system may exclude a "beach" sub-query from subsequent iterations of the search query.

Therefore, this section of BASU discloses providing search results to a user, receiving feedback about the search results, and adjusting the broadening of the search query in response to the feedback. However, in the method disclosed by BASU the user is never presented with broadened search terms. Rather, the user is presented with the search results. The user, therefore, cannot make a selection of a presented broadened term. Rather, the user can only indicate whether the user likes or dislikes returned search results.

Therefore, this section of BASU does not disclose or suggest that broadening the one of the search terms comprises presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and receiving, from the user, a selection from the presented at least one broadened search term, as recited in claim 44.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 44.

For at least these additional reasons, claim 44 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

4.   Claim 45.

Claim 45 depends from claim 37. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 37. Accordingly, Appellants respectfully request that the rejection of claim 45 under 35 U.S.C. § 103(a) be reversed.   Moreover, claim 45 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of its own.

For example, claim 45 recites that broadening the one of the search terms comprises presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink and forming the broadened search query responsive to a selection of the hyperlink by the user. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing these features (final Office Action, p. 6). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the

adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose, suggest, or even mention hyperlinks. This section of BASU also does not disclose or suggest presenting at least one broadened search characteristic to a user. Rather, this section of BASU discloses that a user may indicate that a particular sub-query is not relevant to a query, by providing feedback regarding returned search results (e.g., see paragraphs [0052]-[0055] of BASU).

Therefore, this section of BASU does not disclose or suggest that broadening the one of the search terms comprises presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink and forming the broadened search query responsive to a selection of the hyperlink by the user, as recited in claim 45.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 45.

For at least these additional reasons, claim 45 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

5.   Claims 39 and 77-79.

Independent claim 39 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query comprising a plurality of search terms; broadening, using one or more processors associated with the computer system, one of the plurality of search terms; excluding, using one or more processors associated with the computer system, the broadened one of the plurality of search terms from the search query; executing, using one or more processors associated with the

computer system, a search based on the search query, after excluding the broadened one of the

plurality of search terms, to provide search results; and evaluating, using one or more processors

associated with the computer system, the search results relative to the excluded search term using

categorical or clustered distinctions. BASU and NELSON, whether taken alone or in any

reasonable combination, do not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest excluding, using one or

more processors associated with a computer system, a broadened one of a plurality of search

terms from a search query, and evaluating, using one or more processors associated with the

computer system, the search results relative to the excluded search term using categorical or

clustered distinctions, as recited in claim 39. The Examiner relies on paragraphs [0043] and

[0004] of BASU for allegedly disclosing the features of claim 39 (final Office Action, p. 4).

Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0043] of BASU discloses:

> The query expansion operation 304 may be defined by the user or developed by the system through user interaction. It is contemplated that query to sub-query expansion may be one-to-one, one-to-many, many-to-one, or many-to-many. Referring now to FIG. 4, an example of a many-to-many query expansion process is shown. The query "outdoor" 402 is shown expanded to sub-queries "trees" 404 and "sky" 406, and the query "beach" 408 is mapped to sub-queries "sky" 406 and "sand" 410. Thus, queries may be expanded to a common sub-query while also being expanded to distinct sub-queries.

This section of BASU discloses that a query expansion operation may be defined by the user or

developed by the system through user interaction. The query to sub-query expansion may be

one-to-one, one-to-many, many-to-one, or many-to-many. An example of a many-to-many

query is shown in Fig. 4 of BASU, which depicts the query "outdoor" mapped to the sub-queries

"trees" and "sky" and the query "beach" mapped to sub-queries "sky" and "sand."

This section of BASU does not disclose or suggest <u>excluding one of the broadened search</u>

<u>terms from the search query</u>. Rather, this section of BASU discloses mapping a search term to

an additional search term, mapping a search term to multiple additional search terms, mapping

multiple search terms to one additional search term, and mapping multiple search terms to

multiple search terms. This section of BASU does not disclose or suggest, for example, mapping

a search term to an additional search term, and then excluding that search term and the additional

search term from the search query, as would be required by claim 39 based on the Examiner's

interpretation of BASU.

Since this section of BASU does not disclose or suggest excluding a broadened one of a

plurality of search terms from a search query, this section of BASU cannot disclose or suggest

evaluating search results <u>relative to an excluded search term</u> using categorical or clustered

distinctions.

Therefore, this section of BASU does not disclose or suggest <u>excluding</u>, using one or

more processors associated with a computer system, a <u>broadened one of a plurality of search</u>

<u>terms from a search query</u>, and <u>evaluating</u>, using one or more processors associated with the

computer system, <u>the search results relative to the excluded search term using categorical or</u>

<u>clustered distinctions</u>, as recited in claim 39.

Paragraph [0004] of BASU discloses:

> Another search strategy is the use of document classification. In this approach, documents are first classified using a document classification algorithm. Infrequent terms found in the document class are considered similar and are clustered in the same term class, referred to as a thesaurus class. The indexing of documents and queries is enhanced either by replacing a term by a thesaurus class or by adding a thesaurus class to the index data. However, the retrieval effectiveness depends strongly on some parameters that are often difficult to determine. See, for example, C. J. Crouch, B. Young, Experiments in Automatic Statistical Thesaurus Construction, SIGIR'92, 15th Int. ACM/SIGIR Conf. on R & D in Information Retrieval, Copenhagen, Denmark, pp. 77-87, June 1992. Furthermore, commercial databases typically contain millions of documents and are highly dynamic. Often the number of documents is much larger than the number of terms in the database. Consequently, document classification is much more expensive and has to be done more frequently than the simple term classification mentioned above.

This section of BASU discloses that another search strategy is the use of document classification,

in which documents are classified using a classification algorithm. Infrequent terms found in a

document class are considered similar and are clustered in the same term class, called a thesaurus class. This section of BASU discloses that queries are enhanced by either replacing a term by a thesaurus class or by adding a thesaurus class to the index data. Commercial databases contain millions of documents and the number of documents is much larger than the number of terms in the database. This section of BASU does not disclose or suggest broadening a search term, let alone excluding a broadened search term from a search query.

Since this section of BASU does not disclose or suggest excluding a broadened one of a plurality of search terms from a search query, this section of BASU cannot disclose or suggest evaluating search results relative to an excluded search term using categorical or clustered distinctions.

Therefore, this section of BASU does not disclose or suggest excluding, using one or more processors associated with a computer system, a broadened one of a plurality of search terms from a search query, and evaluating, using one or more processors associated with the computer system, the search results relative to the excluded search term using categorical or clustered distinctions, as recited in claim 39.

NELSON does not overcome the deficiencies of BASU set forth above with respect to claim 39.

In the Response to Arguments section of the final Office Action, the Examiner alleges that paragraphs [0033], [0043], and [0045] of BASU disclose the above-noted feature of claim 39, without explaining what the Examiner's interpretation of the claim features is, or how the Examiner is construing these sections of BASU to correspond to the Examiner's interpretation (final Office Action, pp. 18-19). Appellants requested that the Examiner explain which specific passage from BASU that the Examiner believes corresponds to excluding a broadened search

term from a search query. The Examiner has not addressed this request. Nevertheless,

Appellants submit that these sections of BASU do not disclose or suggest the above-noted

feature of claim 39.

Paragraph [0033] of BASU discloses:

A query may be subjective or objective. For example, the query "sunset" refers to the setting of the sun and, hence, is an abstract objective query. On the other hand, the query "beautiful evening" is termed as an abstract subjective query in so far as it is based on the user's subjective interpretations of what constitutes a beautiful evening. It is contemplated that the present invention can search both objective and subjective queries. Although subjective queries are by nature particular to the user, the query system 108 is able to learn the user's preferences though user feedback, thereby adapting the search results to the user's definition of subjective concepts.

This section of BASU discloses that a query may be subjective or objective. For example, the

query "sunset" is an abstract objective query and the query "beautiful evening" is an abstract

subjective query. This section of BASU discloses searching both subjective and objective

queries, learning a user's preferences through user feedback, and adapting search results to the

user's definition of subjective concepts.

This section of BASU does not disclose or suggest excluding, using one or more

processors associated with a computer system, a broadened one of a plurality of search terms

from a search query, and evaluating, using one or more processors associated with the computer

system, the search results relative to the excluded search term using categorical or clustered

distinctions, as recited in claim 39.

Paragraph [0043] of BASU is addressed above.

Paragraph [0045] of BASU discloses:

The processing operation 306 may further translate sub-queries into one or more representations, as illustrated in FIG. 6. Thus, the processing operation 306 may include translating a context exemplar to an abstract exemplar, translating an abstract exemplar to another abstract exemplar, translating an abstract exemplar to a context exemplar, and translating a context exemplar to another context exemplar.

This section of BASU discloses translating sub-queries into one or more representations, including translating a context exemplar to an abstract exemplar, translating an abstract exemplar to another abstract exemplar, and translating a context exemplar to another context exemplar.

This section of BASU does not disclose or suggest excluding, using one or more processors associated with a computer system, a broadened one of a plurality of search terms from a search query, and evaluating, using one or more processors associated with the computer system, the search results relative to the excluded search term using categorical or clustered distinctions, as recited in claim 39.

Appellants will also address paragraphs [0052]-[0055] of BASU. This section of BASU is reproduced above, and discloses presenting search results to the user and letting the user indicate if the result is acceptable. If the search result does not yield the required information, the process control passes to an adapting operation. The adapting operation modifies the search process in an attempt to increase the relevance of the search results, based on user feedback. The adaptation may be serial, by having the user provide feedback over a series of search iterations, or parallel, by the user providing a large number of positive and negative examples to retrain the model. For example, in response to the query "beautiful evening," the user may indicate that the user does not like the system returning beach images, and in response, the system may exclude a "beach" sub-query from subsequent iterations of the search query.

This section of BASU does not disclose or suggest excluding a search term from a search query. Rather, this section of BASU discloses excluding a sub-query, which was not part of the original search query. Furthermore, this section of BASU does not disclose or suggest evaluating search results, relative to an excluded search term, using categorical or clustered distinctions.

Therefore, this section of BASU does not disclose or suggest <u>excluding</u>, using one or more processors associated with a computer system, a <u>broadened one of a plurality of search terms from a search query</u>, and <u>evaluating</u>, using one or more processors associated with the computer system, <u>the search results relative to the excluded search term using categorical or clustered distinctions</u>, as recited in claim 39.

In the Advisory Action, the Examiner alleges that "excluding a term" means not using or removing a term from a search query, and that the references disclose that terms from sub-queries do not have to be used. The Examiner further alleges that queries are based on both subjective and objective interpretations, based on learned user preferences, and that subjective definitions result in possible exclusion of terms. The Examiner relies on paragraph [0033] of BASU for supporting this allegation (Advisory Action, sixth paragraph).

Appellants respectfully submit that paragraph [0033] of BASU does not disclose or suggest that "subjective definitions result in possible exclusion of terms." This section of BASU also does not disclose or suggest that "terms from sub-queries do not have to be used." Therefore, this section (or any other section) of BASU does not support the Examiner's allegations.

Furthermore, even if it assumed, for the sake of argument, that BASU does disclose that terms from sub-queries do not have to be used, this does not correspond to the specifically recited feature of excluding a search term that has been broadened from a search query, as recited in claim 39, because a sub-query of BASU does not correspond to one of the search terms of the search query (i.e., the sub-query does not correspond to a search term from the search query). Rather, a sub-query of BASU is derived from a search term. For example, the query "beach" is expanded to the sub-queries "sky," "water," and "sand" (see paragraph [0041] of

BASU). Therefore, not using "sky," "water," or "sand" would not correspond to excluding "beach" from the original query.

For at least the foregoing reasons, Appellants submit that claim 39 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly, Appellants respectfully request that the rejection of claim 39 under 35 U.S.C. § 103(a) based on BASU and NELSON be reversed.

Claims 77-79 depend from claim 39. Therefore, these claims are patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 39. Accordingly, Appellants respectfully request that the rejection of claims 77-79 under 35 U.S.C. § 103(a) be reversed.

6.   Claims 49, 52-55, and 63.

Independent claim 49 is directed to one or more memory devices containing instructions executable by one or more processors. The one or more memory devices comprise one or more instructions to receive a search query comprising a plurality of search terms from a user, where the search query includes multiple symbols which define a user-assigned strength of broadening associated with one of the search terms of the search query; one or more instructions to broaden the one of the search terms to an extent determined by the user-assigned strength to produce a broadened search query, where a number of the multiple symbols determines the extent to which the one of the search terms is broadened; and one or more instructions to execute a search based on the broadened search query. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest one or more instructions to broaden the one of the search terms of a search query to an extent determined by a user-assigned

strength to produce a broadened search query, where a number of multiple symbols in the search query determines the extent to which the one of the search terms is broadened, as recited in claim 49. The Examiner relies on paragraph [0038] of BASU for allegedly disclosing the features of claim 49 (final Office Action, p. 6). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest a number of multiple symbols in a search query that determine the extent to which one of the search terms of the search query is broadened. In fact, this section of BASU does not even mention symbols that indicate that a query term is to be broadened.

Therefore, this section of BASU does not disclose or suggest one or more instructions to broaden the one of the search terms of a search query to an extent determined by a user-assigned strength to produce a broadened search query, where a number of multiple symbols in the search

query determines the extent to which the one of the search terms is broadened, as recited in claim 49.

NELSON does not overcome the deficiencies of BASU set forth above with respect to claim 49. In fact, the Examiner did not cite NELSON in the rejection of claim 49. The Examiner also did not provide any articulated reasoning or rational analysis for combining BASU and NELSON with respect to the features recited in claim 49. Therefore, the rejection of claim 49 under 35 U.S.C. § 103(a) based on BASU and NELSON is not a proper rejection under 35 U.S.C. § 103(a).

For at least the foregoing reasons, claim 49 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly, Appellants respectfully request that the rejection of claim 49 under 35 U.S.C. § 103(a) based on BASU and NELSON be reversed.

Claims 52-55 and 63 depend from claim 49. Therefore, these claims are patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 49. Accordingly, Appellants respectfully request that the rejection of claims 52-55 and 63 under 35 U.S.C. § 103(a) be reversed.

7.   Claims 51 and 64.

Claim 51 depends from claim 49. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 49. Accordingly, Appellants respectfully request that the rejection of claim 51 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 51 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of its own.

For example, claim 51 recites that the search query further <u>includes a user-selected delimiter associated with another one of the search terms that indicates that the other one of the search terms should not be broadened</u>. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing this feature (final Office Action, pp. 6-7). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest <u>a user-selected delimiter</u>. A delimiter, as the term is known in the art, indicates a character that signals that a subsequent character or set of characters is to be interpreted within the ordinary meaning of the character or set of characters, rather than as an operator. Furthermore, this section of BASU does not disclose or suggest <u>indicating that a search term should not be broadened</u>. Rather, this section of BASU discloses that if a user indicates that a sub-query term is not relevant to a query, the adaptation module may assign a lower probability of relevance to the sub-query term. The sub-query term

"smoke" is a term that was generated in response to broadening the query term "rocket launch."

Therefore, as the query term has already been broadened, this section of BASU cannot be

reasonably interpreted as disclosing a delimiter that indicates that a search term should not be

broadened.

Therefore, this section of BASU does not disclose or suggest that the search query further

includes a user-selected delimiter associated with another one of the search terms that indicates

that the other one of the search terms should not be broadened, as recited in claim 51.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of

BASU set forth above with respect to claim 51.

For at least these additional reasons, claim 51 is patentable over BASU and NELSON,

whether taken alone or in any reasonable combination.

Claim 64 depends from claim 51. Therefore, this claim is patentable over BASU and

NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 51. Accordingly, Appellants respectfully request that the

rejection of claim 64 under 35 U.S.C. § 103(a) be reversed.

8.   Claim 56.

Claim 56 depends from claim 49. Therefore, this claim is patentable over BASU and

NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 49. Accordingly, Appellants respectfully request that the

rejection of claim 56 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 56 is patentable

over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of

its own.

For example, claim 56 recites that the one or more instructions to broaden the one of the search terms comprises one or more instructions to present at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and one or more instructions to receive, from the user, a selection from the presented at least broadened search term. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing these features (final Office Action, p. 8). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest presenting at least one broadened search term as one of a of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms, and receiving, from the user, a selection from the presented at least one broadened search term. The Examiner appears to be interpreting the above section of

BASU as disclosing presenting broadened search terms to a user and receiving a selection from the user of a broadened search term. However, this interpretation of BASU is factually incorrect. At no point in the disclosure of BASU is it disclosed that a user may select which search terms are broadened in the user's query. Rather, this section of BASU discloses receiving feedback from the user regarding search results, and applying the user's feedback as weights to terms to be used in future search queries (by the adaptation module 212 of BASU, which attempts to refine search results as queries are repeated over time). Thus, the user's feedback is not applied to the user's query or to a particular query.

Therefore, this section of BASU does not disclose or suggest one or more instructions to present at least one broadened search term associated with one of the search terms of a search query as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and one or more instructions to <u>receive, from the user, a selection from the presented at least broadened search term</u>, as recited in claim 56.

Appellants will address <u>all the sections of BASU that disclose user input</u> to further demonstrate this point.

Paragraph [0043] of BASU is reproduced above. This section of BASU discloses that a user may define whether a query expansion operation is one-to-one, one-to-many, many-to-one, or many-to-many. This section of BASU does not disclose or suggest presenting the user with a set of broadened search terms and receiving a selection of a broadened search term from the user.

Therefore, this section of BASU does not disclose or suggest one or more instructions to present at least one broadened search term associated with one of the search terms of a search query as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a</u>

list of selectable search terms and one or more instructions to <u>receive, from the user, a selection</u> <u>from the presented at least broadened search term,</u> as recited in claim 56.

The last sentence of paragraph [0035] of BASU discloses that a user may configure the type of sub-query translation that is performed by the system, and that sub-query translation may not be performed in every query. This section of BASU does not disclose or suggest presenting the user with a set of broadened search terms and receiving a selection of a broadened search term from the user. Rather, this section of BASU discloses configuring a type of sub-query translation (i.e., context-to-abstract, abstract-to-context, etc.).

Therefore, this section of BASU does not disclose or suggest one or more instructions to present at least one broadened search term associated with one of the search terms of a search query as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a</u> <u>list of selectable search terms</u> and one or more instructions to <u>receive, from the user, a selection</u> <u>from the presented at least broadened search term,</u> as recited in claim 56.

Paragraphs [0052]-[0055] of BASU are reproduced above. This section of BASU discloses presenting search results to the user and that the user indicates if the result is acceptable. If the search result does not yield the required information the process control passes to an adapting operation. The adapting operation modifies the search process in an attempt to increase the relevance of the search results, based on user feedback. The adaptation may be serial, by having the user provide feedback over a series of search iterations, or parallel, by the user providing a large number of positive and negative examples to retrain the model. For example, in response to the query "beautiful evening," the user may indicate that the user does not like the system returning beach images, and in response, the system may exclude a "beach" sub-query from subsequent iterations of the search query.

Therefore, this section of BASU discloses providing search results to a user, receiving feedback about the search results, and adjusting the broadening of the search query in response to the feedback. However, in the method disclosed by BASU the user is never presented with broadened search terms. Rather, the user is presented with the search results. The user therefore cannot make a selection of a presented broadened term. Rather, the user can only indicate whether the user likes or dislikes returned search results.

Therefore, this section of BASU does not disclose or suggest one or more instructions to present at least one broadened search term associated with one of the search terms of a search query as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and one or more instructions to receive, from the user, a selection from the presented at least broadened search term, as recited in claim 56.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 56.

For at least these additional reasons, claim 56 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

9.   Claim 57.

Claim 57 depends from claim 49. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 49. Accordingly, Appellants respectfully request that the rejection of claim 57 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 57 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of its own.

For example, claim 57 recites that the one or more instructions to broaden the one of the search terms comprises one or more instructions to present at least one broadened search characteristic associated with the one of the search terms as a hyperlink and one or more instructions to form the broadened search query responsive to a selection of the hyperlink by the user. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

The Examiner relies on paragraph [0038] of BASU for allegedly disclosing these features (final Office Action, p. 8). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose, suggest, or even mention hyperlinks. This section of BASU also does not disclose or suggest presenting at least one broadened search characteristic to a user. Rather, this section of BASU discloses that a user may indicate that a particular sub-query is not relevant to a query, by providing feedback regarding returned search results (e.g., see paragraphs [0052]-[0055] of BASU).

Therefore, this section of BASU does not disclose or suggest one or more instructions to present at least one broadened search characteristic associated with one of the search terms of a search query as a hyperlink and one or more instructions to form a broadened search query responsive to a selection of the hyperlink by the user, as recited in claim 57.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 57.

For at least these additional reasons, claim 57 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

10.   Claims 65, 66, and 69-72.

Independent claim 65 is directed to a system. The system includes one or more server devices comprising means for receiving a search query comprising a plurality of search terms from a user, where the search query further includes multiple user-selected operators associated with one of the search terms of the search query and where the multiple user-selected operators comprise multiple symbols that represent search term broadening; means for broadening the one of the search terms based on the multiple user-selected operators to produce a broadened search query, where the means for broadening the one of the search terms based on the multiple user-selected operators to produce a broadened search query comprises means for broadening the one of the search terms to an extent determined by a number of occurrences of the multiple symbols; and means for executing a search using the broadened search query. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest means for broadening one of the search terms of a search query based on multiple user-selected operators, comprising

multiple symbols, to produce a broadened search query, <u>where the means for broadening the one</u> <u>of the search terms based on the multiple user-selected operators to produce a broadened search</u> <u>query comprises means for broadening the one of the search terms to an extent determined by a</u> <u>number of occurrences of the multiple symbols</u>, as recited in claim 65.

The Examiner states that claims 65-74 are system claims corresponding to method claims 1, 38, 64, 40-45, 61, 63. Appellants respectfully submit that claims 1 and 61 were cancelled and that claims 38, 64, 40-45, and 63 are dependent claims which do not recite features that the Examiner can reasonably rely upon in the rejection of independent claim 65. Therefore, a proper rejection of claim 65 under 35 U.S.C. § 103(a) has not been established.

Nevertheless, Appellants will assume the Examiner meant to rely on the rejection of claim 37 in rejecting claim 65 and will address the rejection of claim 65 as such. In rejecting claim 65, the Examiner admits that BASU does not disclose "broadening the one of the search terms to an extent determined by a number of time the same operator is repeated" and relies on col. 7, lines 15-25 of NELSON for allegedly disclosing this feature (final Office Action, p. 3). Appellants disagree with the Examiner's interpretation of NELSON.

Col. 7, lines 15-25 of NELSON are reproduced above. This section of NELSON discloses that an optional process to increase the robustness of a multimedia retrieval pipeline is to add type-specific query tokens to any or all components that are in a query. For example, additional tokens may be used to represent other words similarly spelled to query keywords, or that have similar meanings, or other images of similar shape, color, or texture. This query expansion can be done by default or at the discretion of the user via query operators. In addition, query expansion can add tokens of one component type in response to the presence of tokens of another type.

Assuming that the Examiner is relying on the tokens as allegedly corresponding to an

operator, as recited in claim 65 (a point that Appellants do not concede), this section of NELSON

does not disclose or suggest that one of the tokens is repeated, let alone that a broadening of one

of the search terms is done to an extent determined by a number of times a token is repeated, as

would be required by claim 65 based on the Examiner's interpretation of NELSON.

Therefore, this section of NELSON does not disclose or suggest means for broadening

one of the search terms of a search query based on multiple user-selected operators, comprising

multiple symbols, to produce a broadened search query, <u>where the means for broadening the one</u>

<u>of the search terms based on the multiple user-selected operators to produce a broadened search</u>

<u>query comprises means for broadening the one of the search terms to an extent determined by a</u>

<u>number of occurrences of the multiple symbols</u>, as recited in claim 65.

Therefore, even if BASU were to be combined with NELSON, the combination would

not disclose or suggest each of the features of claim 65. Further, even if for the sake of

argument, the combination of BASU and NELSON could be fairly construed to disclose or

suggest each of the features of claim 65, Appellants assert that the reasons for combining BASU

and NELSON do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for combining BASU and NELSON, the

Examiner alleges (final Office Action, pp. 3-4):

> It would have been obvious to an artisan of ordinary skill in the pertinent at the time *(sic)* the invention was
> made to have incorporated the teaching of Nelson into the system of Basu. The modification would have
> been obvious because the two references are concerned with the solution to problem query broadening and
> data retrieval, therefore there is an implicit motivation to combine the references. In other words, the
> ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited
> references at the time the invention was made. Consequently, the ordinary skilled artisan, would have been
> motivated to combine the cited references since Nelsons teaching would enable users of the Basu system to
> have different from other operator along with the ability to index results and database data.

Appellants submit that the Examiner's allegation is clearly insufficient for establishing a *prima facie* case of obviousness with respect to claim 65. The Examiner's statement is merely a conclusory statement of an alleged benefit of the combination of BASU and NELSON. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. 398 (2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. In this case, no such articulated reasoning has been provided with respect to claim 65.

For example, the Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. § 103 <u>should be made explicit</u>. See M.P.E.P. § 2143. Exemplary rationales that may support a conclusion of obviousness include: (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) "Obvious to try" - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art; and (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

The Examiner did not indicate which of the above-noted rationales (or another rationale) the Examiner is employing to support the alleged conclusion of obviousness with respect to claim 65. The Examiner also did not articulate the specific findings required for the Examiner's particular rationale, as enumerated in M.P.E.P. § 2143 under each of the above-noted exemplary rationales.

For at least the foregoing reasons, claim 65 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly, Appellants respectfully request that the rejection of claim 65 under 35 U.S.C. § 103(a) based on BASU and NELSON be reversed.

Claims 66 and 69-72 depend from claim 65. Therefore, these claims are patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 65. Accordingly, Appellants respectfully request that the rejection of claims 66 and 69-72 under 35 U.S.C. § 103(a) be reversed.

11.   Claims 67 and 68.

Claim 67 depends from claim 65. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 65. Accordingly, Appellants respectfully request that the rejection of claim 67 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 67 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of its own.

For example, claim 67 recites that the search query further includes a user-selected delimiter associated with another of the search terms that indicates that the other of the search

terms should not be broadened. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

In rejecting claim 67, the Examiner relies on the rejection of claim 38 (final Office Action, p. 10). In rejecting claim 38, the Examiner relies on paragraph [0038] of BASU for allegedly disclosing this feature (final Office Action, p. 4). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest a user-selected delimiter. A delimiter, as the term is known in the art, indicates a character that signals that a subsequent character or set of characters is to be interpreted within the ordinary meaning of the character or set of characters, rather than as an operator. Furthermore, this section of BASU does not disclose or suggest indicating that a search term should not be broadened. Rather, this section of BASU discloses that if a user indicates that a sub-query term is not relevant to a query, the adaptation module may assign a lower probability of relevance to the sub-query term. The sub-query term

"smoke" is a term that was generated in response to broadening the query term "rocket launch."

Therefore, as the query term has already been broadened, this section of BASU cannot be

reasonably interpreted as disclosing a delimiter that indicates that a search term should not be

broadened.

Therefore, this section of BASU does not disclose or suggest that the search query further

includes a user-selected delimiter associated with another of the search terms that indicates that

the other of the search terms should not be broadened, as recited in claim 67.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of

BASU set forth above with respect to claim 67.

For at least these additional reasons, claim 67 is patentable over BASU and NELSON,

whether taken alone or in any reasonable combination.

Claim 68 depends from claim 67. Therefore, this claim is patentable over BASU and

NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 67. Accordingly, Appellants respectfully request that the

rejection of claim 68 under 35 U.S.C. § 103(a) be reversed.

12.   Claim 73.

Claim 73 depends from claim 65. Therefore, this claim is patentable over BASU and

NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 65. Accordingly, Appellants respectfully request that the

rejection of claim 73 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 73 is patentable

over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of

its own.

For example, claim 73 recites that means for broadening one of the search terms of a search query includes means for presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and means for receiving a selection from the presented at least broadened search term from the user. BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest these features.

In rejecting claim 73, the Examiner relies on the rejection of claim 44 (final Office Action, p. 10). In rejecting claim 44, the Examiner relies on paragraph [0038] of BASU for allegedly disclosing these features (final Office Action, pp. 5-6). Appellants disagree with the Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest presenting at least one broadened search term as one of a of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms, and receiving, from the user, a selection from the presented at

least one broadened search term. The Examiner appears to be interpreting the above section of BASU as disclosing presenting broadened search terms to a user and receiving a selection from the user of a broadened search term. However, this interpretation of BASU is factually incorrect. At no point in the disclosure of BASU is it disclosed that a user may select which search terms are broadened in the user's query. Rather, this section of BASU discloses receiving feedback from the user regarding search results, and applying the user's feedback as weights to terms to be used in future search queries (by the adaptation module 212 of BASU, which attempts to refine search results as queries are repeated over time). Thus, the user's feedback is not applied to the user's query or to a particular query.

Therefore, this section of BASU does not disclose or suggest that means for broadening one of the search terms of a search query includes means for presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms and means for receiving a selection from the presented at least broadened search term from the user, as recited in claim 73.

Appellants will address all the sections of BASU that disclose user input to further demonstrate this point.

Paragraph [0043] of BASU is reproduced above. This section of BASU discloses that a user may define whether a query expansion operation is one-to-one, one-to-many, many-to-one, or many-to-many. This section of BASU does not disclose or suggest presenting the user with a set of broadened search terms and receiving a selection of a broadened search term from the user.

Therefore, this section of BASU does not disclose or suggest that means for broadening one of the search terms of a search query includes means for presenting at least one broadened

search term associated with the one of the search terms as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and means for <u>receiving a selection from the presented at least broadened search term from the user</u>, as recited in claim 73.

The last sentence of paragraph [0035] of BASU discloses that a user may configure the type of sub-query translation that is performed by the system, and that sub-query translation may not be performed in every query. This section of BASU does not disclose or suggest presenting the user with a set of broadened search terms and receiving a selection of a broadened search term from the user. Rather, this section of BASU discloses configuring a type of sub-query translation (i.e., context-to-abstract, abstract-to-context, etc.).

Therefore, this section of BASU does not disclose or suggest that means for broadening one of the search terms of a search query includes means for presenting at least one broadened search term associated with the one of the search terms as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and means for <u>receiving a selection from the presented at least broadened search term from the user</u>, as recited in claim 73.

Paragraphs [0052]-[0055] of BASU are reproduced above. This section of BASU discloses presenting search results to the user and that the user indicates if the result is acceptable. If the search result does not yield the required information the process control passes to an adapting operation. The adapting operation modifies the search process in an attempt to increase the relevance of the search results, based on user feedback. The adaptation may be serial, by having the user provide feedback over a series of search iterations, or parallel, by the user providing a large number of positive and negative examples to retrain the model. For

example, in response to the query "beautiful evening," the user may indicate that the user does not like the system returning beach images, and in response, the system may exclude a "beach" sub-query from subsequent iterations of the search query.

Thus, this section of BASU discloses providing search results to a user, receiving feedback about the search results, and adjusting the broadening of the search query in response to the feedback. However, in the method disclosed by BASU the <u>user is never presented with broadened search terms</u>. Rather, the user is presented with the search results. <u>The user therefore cannot make a selection of a presented broadened term</u>. Rather, the user can only indicate whether the user likes or dislikes returned search results.

Therefore, this section of BASU does not disclose or suggest that means for broadening one of the search terms of a search query includes means for presenting at least one broadened search term associated with the one of the search terms as <u>at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms</u> and means for <u>receiving a selection from the presented at least broadened search term from the user</u>, as recited in claim 73.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 73.

For at least these additional reasons, claim 73 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

<u>13.   Claim 74.</u>

Claim 74 depends from claim 65. Therefore, this claim is patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 65. Accordingly, Appellants respectfully request that the

rejection of claim 74 under 35 U.S.C. § 103(a) be reversed. Moreover, claim 74 is patentable

over BASU and NELSON, whether taken alone or in any reasonable combination, for reasons of

its own.

For example, claim 74 recites that means for broadening one of the search terms of a

search query includes means for presenting at least one broadened search characteristic

associated with the one of the search terms as a hyperlink and means for forming the broadened

search query responsive to a selection of the hyperlink by the user. BASU and NELSON,

whether taken alone or in any reasonable combination, do not disclose or suggest these features.

In rejecting claim 74, the Examiner relies on the rejection of claim 45 (final Office

Action, p. 10). In rejecting claim 45, the Examiner relies on paragraph [0038] of BASU for

allegedly disclosing these features (final Office Action, p. 6). Appellants disagree with the

Examiner's interpretation of BASU.

Paragraph [0038] of BASU is reproduced above. This section of BASU discloses an

adaptation module that attempts to refine the search results as queries that are repeated over time.

The adaptation module is capable of modifying a query expansion module, a sub-query

processing module, and a merging module according to user and system feedback. For example,

if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the

adaptation module may assign a lower probability of relevance to the "smoke" sub-query for

future iterations of the "rocket launch" query. The parametric learning techniques of the

adaptation module may use a generative approach, including probabilistic models and

discriminant approaches, such as kernel machines, support vector machines, and neural

networks.

This section of BASU does not disclose, suggest, or even mention hyperlinks. This section of BASU also does not disclose or suggest presenting at least one broadened search characteristic to a user. Rather, this section of BASU discloses that a user may indicate that a particular sub-query is not relevant to a query, by providing feedback regarding returned search results (e.g., see paragraphs [0052]-[0055] of BASU).

Therefore, this section of BASU does not disclose or suggest that means for broadening one of the search terms of a search query includes <u>means for presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink and means for forming the broadened search query responsive to a selection of the hyperlink by the user</u>, as recited in claim 74.

The disclosure of NELSON does not overcome the deficiencies of the disclosure of BASU set forth above with respect to claim 74.

For at least these additional reasons, claim 74 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination.

<u>14.   Claims 80-84.</u>

Independent claim 80 is directed to a method performed by a computer system. The method includes receiving, using a network interface associated with the computer system, a search query comprising a search term; obtaining, using one or more processors associated with the computer system, a set of broadened search terms based on the search term; presenting, using a network interface associated with the computer system, the set of broadened search terms as a set of corresponding hyperlinks in a user interface; receiving, using a network interface associated with the computer system, selection of a subset of hyperlinks of the set of hyperlinks to select a subset of the broadened search terms; broadening, using one or more processors

associated with the computer system, the search query using the selected subset of broadened

search terms; and executing, using one or more processors associated with the computer system,

a search using the broadened search query. BASU and NELSON, whether taken alone or in any

reasonable combination, do not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest presenting, using a network

interface associated with a computer system, a set of broadened search terms (obtained based on

a received search term) as <u>a set of corresponding hyperlinks in a user interface</u>, as recited in

claim 80. The Examiner appears to rely on paragraphs [0033] and [0038] of BASU for allegedly

disclosing this feature (final Office Action, p. 11). Appellants disagree with the Examiner's

interpretation of BASU.

Paragraph [0033] of BASU is reproduced above. This section of BASU discloses that a

query may be subjective or objective. For example, the query "sunset" is an abstract objective

query and the query "beautiful evening" is an abstract subjective query. This section of BASU

discloses searching both subjective and objective queries, learning a user's preferences through

user feedback, and adapting search results to the user's definition of subjective concepts. This

section of BASU does not disclose or suggest <u>presenting a set of broadened terms to a user</u>, let

alone presenting a set of broadened terms as <u>a set of corresponding hyperlinks</u>. Therefore, this

section of BASU does not disclose or suggest presenting, using a network interface associated

with a computer system, a set of broadened search terms (obtained based on a received search

term) as <u>a set of corresponding hyperlinks in a user interface</u>, as recited in claim 80.

Paragraph [0038] of BASU discloses:

As mentioned above, the query system 108 of the present invention is adaptive. Specifically, the system
108 includes an adaptation module 212 that attempts to refine the search results as queries are repeated over
time. The adaptation module 212 is capable of modifying the query expansion module 204, the sub-query
processing module 206, and the merging module 208 according to user and system feedback. For example,

if a user indicates that the sub-query term "smoke" is not relevant in a "rocket launch" query, the adaptation module 212 may adaptively assign a lower probability of relevance to the "smoke" sub-query in future iterations of "rocket launch" queries. In other words, the adaptation module 212 modifies the query expansion module 204 so that the term "smoke" is assigned a lower confidence level in a "rocket launch" query. The parametric learning techniques of the adaptation module 212 may use a generative approach, including, but not limited to, probabilistic models and graphical probabilistic models and/or a discriminant approach, including, but not limited to, kernel machines, such as support vector machines and neural networks. The adaptation process of the system 108 is discussed in greater detail below.

This section of BASU discloses an adaptation module that attempts to refine the search results as queries that are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks.

This section of BASU does not disclose or suggest <u>presenting a set of broadened terms to a user</u>, let alone presenting a set of broadened terms as <u>a set of corresponding hyperlinks</u>. Therefore, this section of BASU does not disclose or suggest presenting, using a network interface associated with a computer system, a set of broadened search terms (obtained based on a received search term) as <u>a set of corresponding hyperlinks in a user interface</u>, as recited in claim 80.

NELSON does not overcome the deficiencies of BASU set forth above with respect to claim 80.

In the Response to Arguments section of the final Office Action, the Examiner alleges that any time a user is in charge or is able to make the selection to broaden a search that the user

is selecting a link and that paragraph [0042] of BASU discloses presenting at least one

broadened search characteristic associated with one of the search terms as a hyperlink (final

Office Action, p. 20). Appellants disagree with the Examiner's allegation.

At the outset, it is simply not true that any selection to broaden a search implies selecting

a link. Many methods of selection exist, such as, for example, clicking a button or typing in a

command. Furthermore, selecting to broaden a search does not correspond to selecting to

broaden specific terms of a search query. Claim 80 does not recite selecting a link to broaden a

search. Rather, claim 80 specifically recites presenting, using a network interface associated

with a computer system, a set of broadened search terms (obtained based on a received search

term) as a set of corresponding hyperlinks in a user interface, receiving, using a network

interface associated with the computer system, selection of a subset of hyperlinks of the set of

hyperlinks to select a subset of the broadened search terms; broadening, using one or more

processors associated with the computer system, the search query using the selected subset of

broadened search terms. Appellants object to the Examiner's boiling down of the specifically-

recited language of claim 80 to correspond to "making a selection to broaden a search."

Appellants will further address paragraph [0042] of BASU to demonstrate this section of

BASU does not disclose or suggest the above-noted feature of claim 80.

Paragraph [0042] of BASU discloses:

The second level of uncertainty stems from the fact that the expanded sub-query itself cannot be represented as a deterministic entity. Thus, an expansion of the "rocket launch" query into "rocket" and "explosion" sub-queries also necessitate one or more probabilistic representations of the "rocket" and "explosion" sub-queries. The mapped sub-queries are therefore probabilistic. An example of a probabilistic sub-query could be a probability distribution, with the user selecting the particular features used to represent the sub-query. As detailed below, the present invention provides an adaptation scheme whereby sub-query expansion is modifiable and learnable. For example, query expansion can be user-supervised such that sub-query confidence levels are evaluated based on user feedback. Alternatively, confidence levels can be system estimated from a set of examples provided to system.

This section of BASU discloses that expansion of queries into sub-queries is probabilistic, and that an example of a probabilistic sub-query could be a probability distribution, with the user selecting particular features to represent the sub-query. This section of BASU further discloses that the sub-query expansion is modifiable and learnable, and that query expansion can be user-supervised such that sub-query confidence levels are evaluated based on user feedback.

This section of BASU does not disclose or suggest presenting a set of broadened terms to a user, let alone presenting a set of broadened terms as a set of corresponding hyperlinks. Rather, this section of BASU merely discloses that query expansion can be user-supervised. A user supervising a query expansion does not imply that the user is presented with a set of broadened search terms as a set of hyperlinks (and that the user can select specific search terms by selecting the hyperlinks). Therefore, this section of BASU does not disclose or suggest presenting, using a network interface associated with a computer system, a set of broadened search terms (obtained based on a received search term) as a set of corresponding hyperlinks in a user interface, as recited in claim 80.

In the Advisory Action, the Examiner alleges that paragraph [0048] of BASU discloses that representations may be visual, motion, or audio (Advisory Action, paragraph 7). Appellants respectfully submit that this allegation does not address the above-noted feature of claim 80.

For at least the foregoing reasons, Appellants submit that claim 80 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly, Appellants respectfully request that the rejection of claim 80 under 35 U.S.C. § 103(a) based on BASU and NELSON be reversed.

Claims 81-84 depend from claim 80. Therefore, these claims are patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set

forth above with respect to claim 80. Accordingly, Appellants respectfully request that the

rejection of claims 81-84 under 35 U.S.C. § 103(a) be reversed.

15. Claims 85-89.

Independent claim 85 is directed to a method performed by a computer system. The

method includes receiving, using a network interface associated with the computer system, a

search query comprising a search term; obtaining, using one or more processors associated with

the computer system, a set of broadened search terms based on the search term; presenting, using

a network interface associated with the computer system, a set of checkboxes in conjunction with

the set of broadened search terms, where each checkbox of the set of checkboxes corresponds to

one broadened search term of the set of broadened search terms; receiving, using a network

interface associated with the computer system, a selection of a subset of the set of checkboxes to

select a subset of the broadened search terms; broadening, using one or more processors

associated with the computer system, the search query using the selected subset of broadened

search terms; and executing, using one or more processors associated with the computer system,

a search using the broadened search query. BASU and NELSON, whether taken alone or in any

reasonable combination, do not disclose or suggest one or more of these features.

For example, BASU and NELSON do not disclose or suggest receiving, using a network

interface associated with a computer system, a selection of a subset of a set of checkboxes to

select a subset of a set of broadened search terms and broadening, using one or more processors

associated with the computer system, a search query using the selected subset of broadened

search terms, as recited in claim 85. The Examiner did not address claim 85. Instead, the

Examiner alleges that claims 85-89 are method claims corresponding to the methods of claims 1

and 77-79 and are rejected for the same reasons (final Office Action, p. 13). However, none of

claims 1 and 77-79 recites, for example, receiving, using a network interface associated with a computer system, <u>a selection of a subset of a set of checkboxes to select a subset of a set of broadened search terms and broadening, using one or more processors associated with the computer system</u>. Therefore, a *prima facie* case of obviousness with respect to claim 85 has not been established.

Nevertheless, Appellants submit that BASU and NELSON, whether taken alone or in any reasonable combination, do not disclose or suggest the above-noted feature of claim 85. For example, in rejecting claim 51, the Examiner relies on paragraph [0038] of BASU for allegedly disclosing "where the search query further includes a user-selected delimiter associated with another one of the search terms that indicates that the other one of the search terms should not be broadened" (final Office Action, pp. 6-7). Appellants submit that this section (or any other section) of BASU does not disclose or suggest the above-noted feature of claim 85.

Paragraph [0038] of BASU was reproduced above. This section of BASU discloses an adaptation module that attempts to refine the search results as queries are repeated over time. The adaptation module is capable of modifying a query expansion module, a sub-query processing module, and a merging module according to user and system feedback. For example, if a user indicated that the sub-query term "smoke" is not relevant to a "rocket launch" query, the adaptation module may assign a lower probability of relevance to the "smoke" sub-query for future iterations of the "rocket launch" query. The parametric learning techniques of the adaptation module may use a generative approach, including probabilistic models and discriminant approaches, such as kernel machines, support vector machines, and neural networks. This section of BASU does not disclose, suggest, or even mention anything that could reasonably be construed as <u>checkboxes presented in conjunction with a set of broadened search</u>

terms. Therefore, this section of BASU does not disclose or suggest receiving, using a network interface associated with a computer system, a selection of a subset of a set of checkboxes to select a subset of a set of broadened search terms and broadening, using one or more processors associated with the computer system, as recited in claim 85.

NELSON does not overcome the deficiencies of BASU set forth above with respect to claim 85.

In the Response to Arguments section of the final Office Action, the Examiner did not address Appellants' arguments with respect to claim 85.

In the Advisory Action, the Examiner alleges:

> In this case the user makes the selection of search terms to be used in the expansion of broadening since the checkboxes as claimed are presented along with the search terms. As disclosed in the Prior art there are terms to be selected and weighing (see paragraph [0010] of BASU).

Appellants respectfully submit that paragraph [0010] of BASU is part of the background of BASU and describes an article by Yonggang Qiu, which describes a probabilistic expansion model and discusses a selection and weighing of additional search terms. At the outset, Appellants respectfully submit that this section of BASU is unrelated to the other sections of BASU on which the Examiner relies in the rejection. The Examiner has not provided any rationale for combining this section of BASU with the other sections of BASU, as would be required in a proper 35 U.S.C. § 103 rejection that combines unrelated sections of a reference. Nevertheless, this section of BASU does not disclose or suggest that the selection and weighing of additional search terms is performed by a user, let alone receiving a selection of a subset of a set of checkboxes. Therefore, this section of BASU does not disclose or suggest receiving, using a network interface associated with a computer system, a selection of a subset of a set of checkboxes to select a subset of a set of broadened search terms and broadening, using one or

more processors associated with the computer system, a search query using the selected subset of broadened search terms, as recited in claim 85.

For at least the foregoing reasons, Appellants submit that claim 85 is patentable over BASU and NELSON, whether taken alone or in any reasonable combination. Accordingly, Appellants respectfully request that the rejection of claim 85 under 35 U.S.C. § 103(a) based on BASU and NELSON be reversed.

Claims 86-89 depend from claim 85. Therefore, these claims are patentable over BASU and NELSON, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 85. Accordingly, Appellants respectfully request that the rejection of claims 86-89 under 35 U.S.C. § 103(a) be reversed.

VIII. CONCLUSION

In view of the foregoing arguments, Appellants respectfully solicit the Honorable Board

to reverse the Examiner's rejections of claims 37-45, 49, 51-57, 63-74, and 77-89.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is

hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess

fees to such deposit account.

Respectfully submitted,

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IX.   CLAIM APPENDIX

1-36.   (Canceled)

37.   A method performed by a computer system, the method comprising:

receiving, using a network interface associated with the computer system, a search query comprising a plurality of search terms from a user, where the search query further includes a plurality of user-selected operators associated with one of the search terms of the search query and where the plurality of operators comprise a same operator repeated multiple times;

broadening, using one or more processors associated with the computer system, the one of the search terms based on the plurality of user-selected operators to produce a broadened search query, where broadening the one of the search terms comprises:

broadening the one of the search terms to an extent determined by a number of times the same operator is repeated; and

executing, using one or more processors associated with the computer system, a search using the broadened search query.

38.   The method of claim 37, where the search query further includes a user-selected delimiter associated with another one of the search terms that indicates that the other one of the search terms should not be broadened.

39.   A method performed by a computer system, the method comprising:

receiving, using a network interface associated with the computer system, a

search query comprising a plurality of search terms;

broadening, using one or more processors associated with the computer system,

one of the plurality of search terms;

excluding, using one or more processors associated with the computer system, the

broadened one of the plurality of search terms from the search query;

executing, using one or more processors associated with the computer system, a

search based on the search query, after excluding the broadened one of the plurality of

search terms, to provide search results; and

evaluating, using one or more processors associated with the computer system,

the search results relative to the excluded search term using categorical or clustered

distinctions.

40.   The method of claim 37, where broadening the one of the search terms comprises:

        determining a meaning associated with the one of the search terms.

41.   The method of claim 40, where broadening the one of the search terms comprises:

        determining a related concept based on the meaning.

42.   The method of claim 37, where broadening the one of the search terms comprises:

        modifying, replacing, supplementing, removing or restating the one of the search

terms.

43.   The method of claim 37, where broadening the one of the search terms comprises:

        selecting a broadening search term associated with the one of the search terms

from a set of words having a synonymous, alternate spelling, common root, or similar

semantic meaning.

44.   The method of claim 37, where broadening the one of the search terms comprises:

        presenting at least one broadened search term associated with the one of the

search terms as at least one of a static list, a menu of selectable search terms, a set of

checkboxes or a list of selectable search terms; and

        receiving, from the user, a selection from the presented at least broadened search

term.

45.   The method of claim 37, where broadening the one of the search terms comprises:

        presenting at least one broadened search characteristic associated with the one of

the search terms as a hyperlink; and

        forming the broadened search query responsive to a selection of the hyperlink by

the user.

46-48. (Canceled)

49.   One or more memory devices containing instructions executable by one or more

processors, the one or more memory devices comprising:

one or more instructions to receive a search query comprising a plurality of

search terms from a user, where the search query includes multiple symbols which define

a user-assigned strength of broadening associated with one of the search terms of the

search query;

one or more instructions to broaden the one of the search terms to an extent

determined by the user-assigned strength to produce a broadened search query, where a

number of the multiple symbols determines the extent to which the one of the search

terms is broadened; and

one or more instructions to execute a search based on the broadened search query.

50.   (Canceled)

51.   The one or more memory devices of claim 49, where the search query further

includes a user-selected delimiter associated with another one of the search terms that

indicates that the other one of the search terms should not be broadened.

52.   The one or more memory devices of claim 49, where the one or more instructions

to broaden the one of the search terms comprises:

one or more instructions to determine a meaning associated with the one of the

search terms.

53.   The one or more memory devices of claim 52, where the one or more instructions

to broaden the one of the search terms comprises:

one or more instructions to determine a related concept based on the meaning.

54.   The one or more memory devices of claim 49, where the one or more instructions
to broaden the one of the search terms comprises:

one or more instructions to modify, replace, supplement, remove, or restate the
one of the search terms.

55.   The one or more memory devices of claim 49, where the one or more instructions
broaden the one of the search terms comprises:

one or more instructions to select a broadening search term associated with the
one of the search terms from a set of words having a synonymous, alternate spelling,
common root, or similar semantic meaning.

56.   The one or more memory devices of claim 49, where the one or more instructions
to broaden the one of the search terms comprises:

one or more instructions to present at least one broadened search term associated
with the one of the search terms as at least one of a static list, a menu of selectable search
terms, a set of checkboxes or a list of selectable search terms; and

one or more instructions to receive, from the user, a selection from the presented
at least broadened search term.

57.   The one or more memory devices of claim 49, where the one or more instructions
to broaden the one of the search terms comprises:

one or more instructions to present at least one broadened search characteristic associated with the one of the search terms as a hyperlink; and

one or more instructions to form the broadened search query responsive to a selection of the hyperlink by the user.

58-62. (Canceled)

63. The one or more memory devices of claim 49, where each of the multiple symbols comprises one of a graphical or character symbol.

64. The one or more memory devices of claim 51, where the user-selected delimiter comprises a symbol that is different than the multiple symbols.

65. A system, comprising:

one or more server devices comprising:

means for receiving a search query comprising a plurality of search terms from a user, where the search query further includes multiple user-selected operators associated with one of the search terms of the search query and where the multiple user-selected operators comprise multiple symbols that represent search term broadening;

means for broadening the one of the search terms based on the multiple user-selected operators to produce a broadened search query, where the means for

broadening the one of the search terms based on the multiple user-selected

operators to produce a broadened search query comprises:

means for broadening the one of the search terms to an extent

determined by a number of occurrences of the multiple symbols; and

means for executing a search using the broadened search query.

66.   The system of claim 65, where the multiple symbols comprise one of a graphical or character symbol.

67.   The system of claim 65, where the search query further includes a user-selected delimiter associated with another of the search terms that indicates that the other of the search terms should not be broadened.

68.   The system of claim 67, where the user-selected delimiter comprises a symbol that is different than the multiple symbols.

69.   The system of claim 65, where the means for broadening the one of the search terms includes:

means for determining a meaning associated with the one of the search terms.

70.   The system of claim 69, where the means for broadening the one of the search terms includes:

means for determining a related concept based on the meaning.

71.   The system of claim 65, where the means for broadening the one of the search terms includes:

means for modifying, replacing, supplementing, removing or restating the one of the search terms.

72.   The system of claim 65, where the means for broadening the one of the search terms includes:

means for selecting a broadening search term associated with the one of the search terms from a set of words having a synonymous, alternate spelling, common root, or similar semantic meaning.

73.   The system of claim 65, where the means for broadening the one of the search terms includes:

means for presenting at least one broadened search term associated with the one of the search terms as at least one of a static list, a menu of selectable search terms, a set of checkboxes or a list of selectable search terms; and

means for receiving a selection from the presented at least broadened search term from the user.

74.   The system of claim 65, where the means for broadening the one of the search terms includes:

means for presenting at least one broadened search characteristic associated with the one of the search terms as a hyperlink; and

means for forming the broadened search query responsive to a selection of the hyperlink by the user.

75-76. (Canceled)

77.   The method of claim 39, where broadening the one of the plurality of search terms comprises:

determining a meaning associated with the one of the plurality of search terms and determining a related concept based on the meaning.

78.   The method of claim 39, where broadening the one of the plurality of search terms comprises:

modifying, replacing, supplementing, removing or restating the one of the plurality of search terms.

79.   The method of claim 39, where broadening the one of the plurality of search terms comprises:

selecting a broadening search term associated with the one of the plurality of search terms from a set of words having a synonymous, alternate spelling, common root, or similar semantic meaning.

80.   A method performed by a computer system, the method comprising:

receiving, using a network interface associated with the computer system, a

search query comprising a search term;

obtaining, using one or more processors associated with the computer system, a

set of broadened search terms based on the search term;

presenting, using a network interface associated with the computer system, the set

of broadened search terms as a set of corresponding hyperlinks in a user interface;

receiving, using a network interface associated with the computer system,

selection of a subset of hyperlinks of the set of hyperlinks to select a subset of the

broadened search terms;

broadening, using one or more processors associated with the computer system,

the search query using the selected subset of broadened search terms; and

executing, using one or more processors associated with the computer system, a

search using the broadened search query.

81.   The method of claim 80, where obtaining the set of broadened search terms

comprises:

determining at least one meaning associated with the search term.

82.   The method of claim 81, where obtaining the set of broadened search terms

comprises:

determining one or more related concepts based on the at least one meaning.

83.   The method of claim 80, where obtaining the set of broadened search terms

comprises:

modifying, supplementing, or restating the search term.

84.   The method of claim 80, where obtaining the set of broadened search terms

comprises:

selecting a broadened search term of the set of broadened search terms that is

associated with the search term from a set of words having a synonymous, alternate

spelling, common root, or similar semantic meaning.

85.   A method performed by a computer system, the method comprising:

receiving, using a network interface associated with the computer system, a

search query comprising a search term;

obtaining, using one or more processors associated with the computer system, a

set of broadened search terms based on the search term;

presenting, using a network interface associated with the computer system, a set

of checkboxes in conjunction with the set of broadened search terms, where each

checkbox of the set of checkboxes corresponds to one broadened search term of the set of

broadened search terms;

receiving, using a network interface associated with the computer system, a

selection of a subset of the set of checkboxes to select a subset of the broadened search

terms;

broadening, using one or more processors associated with the computer system, the search query using the selected subset of broadened search terms; and

executing, using one or more processors associated with the computer system, a search using the broadened search query.

86. The method of claim 85, where obtaining the set of broadened search terms comprises:

determining at least one meaning associated with the search term.

87. The method of claim 86, where obtaining the set of broadened search terms comprises:

determining one or more related concepts based on the at least one meaning.

88. The method of claim 85, where obtaining the set of broadened search terms comprises:

modifying, supplementing, or restating the search term.

89. The method of claim 85, where obtaining the set of broadened search terms comprises:

selecting a broadened search term of the set of broadened search terms that is associated with the search term from a set of words having a synonymous, alternate spelling, common root, or similar semantic meaning.

X.   <u>EVIDENCE APPENDIX</u>

None.

XI.   <u>RELATED PROCEEDINGS APPENDIX</u>

None.